

## REMARKS

This is in response to the non-final Official Action currently outstanding with regard to the above-identified application.

Claims 1-20 and 22-39 were present in this application at the time of the issuance of the currently outstanding Official Action. Claim 21 was previously canceled, without prejudice. Further, as a result of Applicants' election in response to the Restriction Requirement of 12 March 2007 in the above-identified application, Claims 1-17, 29 and 34-39 stand withdrawn from further consideration as being directed to a non-elected invention. By the foregoing Amendment, Applicants have amended Claim 18 and have added Claims 40-51. No claims have been canceled, and no further claims have been withdrawn. Accordingly, upon the entry of the foregoing Amendment, Claims 18-20, 22-28, 30-33 and 40-51 will constitute the claims under active prosecution in this application.

The claims of this application are set forth above showing the changes made and including appropriate status identifiers as required by the Rules.

In the currently outstanding Official Action, the Examiner has:

1. Acknowledged Applicants' claim for foreign priority under 35 USC §119 (a)-(d) or (f), and confirmed the receipt by the United States Patent and Trademark Office of the required copies of the priority documents.
2. Accepted the formal drawings filed with this application on 22 December 2005.
3. Indicated that Applicants' Information Disclosure Statements of 16 March 2006 and 22 December 2005 have been considered by his provision to us of signed, dated and initialed copies of the Forms PTO/SB/08a/b that accompanied those Information Disclosure Statements.

4. Confirmed our election of Claims 18-20, 22-28 and 30-33, without traverse, and confirmed that he in his requirement for Restriction that he intended to include Claims 31 and 32 in the Group designation elected by Applicants.
5. Requested that the entire specification be reviewed for minor errors – **Applicants respectfully note that the entire specification has been reviewed for minor errors as requested by the Examiner and note that the two minor errors found have been corrected above as part of the foregoing Amendment.**
6. Rejected claims 18-20 and 22-27 under 35 USC 103(a) as being unpatentable over Gue et al (US Patent Application Publication No. 2004/0090483).
7. Rejected Claim 28 under 35 USC 103(a) as being unpatentable over the Gue et al reference in view of Noguchi et al (US Patent Publication No. 2001/0017639).
8. Rejected Claims 30-33 under 35 USC 103(a) as being unpatentable over the Gue et al reference in view of Agarwal (US 6,290,331) – **Applicants respectfully note that the Agarwal (US 6,290,331) reference is not listed on the Notice of References Cited (PTO Form – 892) that accompanied the currently outstanding Official Action. It is respectfully requested that a Notice of References Cited (Form PTO-892) be issued in response to this submission listing the cited and applied Agarwal reference for the record.**

Further comment with regard to items 1-5 above is not deemed to be required in these Remarks.

With respect to items 6-8 above, Applicants respectfully submit that whether the layer of the Gue et al reference that is deemed to correspond to the first nozzle layer of the present invention is taken as being the Gue layer 26, the Gue layer 23, or the Gue layer 22, the clear difference between the Gue et al reference and the present invention is that the Gue member 25 (which is the heating resistance) has a ring shape with an inner diameter **larger** than the diameter of the nozzle hole 24.

According to the Gue et al reference, the Gue member 25 is for providing a heating resistance. Thus, Gue at paragraph [0101] states that: “The membrane (SiO<sub>2</sub> layer 22 and SiN<sub>x</sub> layer 23 see Fig. 2 and paragraph [0097]) supports an integrated heating resistance (25), usually made of strongly doped polycrystalline silicon in order to achieve the lowest possible electrical resistivity.” Further, the Gue reference indicates at paragraph [0120] that the polysilicon resistance (25) – see paragraph [0115] – is covered with a spin on glass type silicon layer (26) so that it is electrically and chemically protected from the outside environment. Still further, Gue indicates at paragraph [0121] that the hole 24 is made at the centre of the heating resistance by chemically etching the spin-on glass (i.e., layer 26) plasma etching the SiN<sub>x</sub> (i.e., layer 23) and chemically etching the SiO<sub>2</sub> layer 22.

Therefore, Applicants respectfully submit that it is clear that the Gue reference is quite different from the present invention wherein as is shown specifically in Fig. 15(b) the diameter of the discharge opening 11c is such as to be defined (determined, or coinciding) with the diameter of the discharge opening. This is deemed to be an important feature of the present invention and the foregoing Amendments to Claim 18 and New Claims 40-52 are believed to clearly and definitely emphasize that fact. In this regard, reference is respectfully specifically directed to the present specification at page 125, line 14 to page 126, line 6; Page 128, last line to page 127, line 5; and Page 130, line 8-19 as examples of the repeated disclosure of the present specification of the need to establish high precision in the formation of the discharge opening and the accomplishment of that goal by forming the discharge opening directly in the discharge layer 14 shown in the drawings of the present application rather than in a spin on glass layer covering a ring-shaped heating resistance like that shown at 25 in the Gue reference.

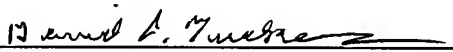
Hence, Applicants respectfully submit that the Gue et al reference is insufficient to teach, disclose or suggest to one of ordinary skill in the art as of the time that the present invention was made the importance of precision in the formation of the discharge opening that requires the nature of the material of the discharge layer to evidence the difference in etching resistance relative to the other layers of the nozzle plate herein claimed.

Consequently, Applicants respectfully submit that in view of the foregoing Amendment and Remarks the claims of this application are now in condition for allowance. Accordingly, reconsideration and allowance of the above-identified application in response to this communication is respectfully requested.

Applicants also believe that additional fees beyond those submitted herewith are not required in connection with this communication. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. **04-1105**, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

Date: September 24, 2007

  
**SIGNATURE OF PRACTITIONER**

Reg. No. 27,840

David A. Tucker  
(type or print name of practitioner)  
Attorney for Applicant(s)

Tel. No.: (617) 517-5508

Edwards Angell Palmer & Dodge LLP  
P.O. Box 55874  
P.O. Address

Customer No.: 21874

Boston, MA 02205